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AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A ~~sensor~~ system comprising:

~~with an arrangement of sensors (10, 11, 12, 13), wherein each sensor (10, 11, 12, 13) detects~~ a sensor to detect at least one of a magnetic field and an electrical field, the sensor comprising and outputs an electric basic sensor signal at its sensor outputs that output sensor signals when a field is detected; (21, 22, 23, 24),

~~[[-]] in which the sensor outputs (21, 22) of each sensor (10, 11, 12, 13) are connected to the inputs (41, 42, 43, 44) of a signal modulator that receives sense signals that correspond to the sensor signals (30, 31), wherein the signal modulator (30, 31) has having first and second at least two control states, wherein in a the first control state, the signal modulator outputs the sense signals, the corresponding basic sensor signal is fed to the outputs (51, 52) of the signal modulator (30, 31) as a sensor end signal (iop, ion) and, wherein in a the second control state, of the signal modulator outputs inverted sense signals; and (30, 31), the inverted basic sensor signal of the corresponding sensor (10, 11, 12, 13) is fed to the outputs (51, 52) of the signal modulator as a sensor end signal (iop, ion);~~

~~[[-]] and with a device that receives and processes the sense signals or the inverted sense signals (6) for the addition of the sensor end signals (iop, ion) to a system signal~~

~~(VOP, VON).~~

2. (Currently Amended) ~~Sensor~~ The system according to of claim 1, wherein the
sensor comprises a sensors (10, 11, 12, 13) are Hall sensor sensors.

3. (Currently Amended) ~~Sensor~~ The system of claim 1, further comprising:
according to one of claims 1 or 2, wherein an operational transconductance
amplifier (70, 71) is connected between each the sensor (10, 11, 12, 13) and the
corresponding signal modulator, the operational transconductance amplifier generating the
sense signals from the sensor signals (30, 31).

4. (Currently Amended) The sensor system of claim 11 according to one of claims
1 through 3, wherein the signal modulators (30, 31) modulator and the second signal
modulator are connected to one another in parallel.

5. (Currently Amended) The sensor system of claim 1, further comprising:
according to one of claims 1 through 4, wherein the signal modulators (30, 31) are
each connected to a control logic circuit in communication with the signal modulator (8).

6. (Currently Amended) The sensor system according to of claim 5, wherein the
signal modulators (30, 31) can be modulator is controlled by a digital control word input to
the control logic circuit.

7. (Currently Amended) The sensor system of claim 11 according to one of claims 1 through 6, wherein the sensor and the second sensor sensors (10, 11, 12, 13) are arranged in a plane.

8. (Currently Amended) The sensor system of claim 12 according to one of claims 1 through 7, in which wherein the sensor and the plural sensors (10, 11, 12, 13) are arranged in rows and columns that are orthogonal to one another.

9. (Currently Amended) A method to operate of operating a sensor system comprised of:

plural sensors to detect at least one of a magnetic field and an electrical field, each of the plural sensors comprising outputs that output sensor signals when a field is detected;

plural signal modulators that receive sense signals that correspond to sensor signals from corresponding ones of the plural sensors, each of the plural signal modulators having first and second control states, wherein in the first control state, each signal modulator outputs sense signals, and, wherein in the second control state, each signal modulator outputs inverted sense signals; and

a device that receives and processes the sense signals or the inverted sense signals, the method comprising:

according to one of claims 1 through 8, wherein the control states of the signal modulators (30, 31) define the configuration of the sensor system with the following steps:

[[a)]] reading ~~in~~ and storing ~~of~~ a first system signal from the device (VOP, VON) in ~~the~~ a case that the system is in of a first configuration; (K1)

[[b)]] ~~modifying the~~ changing a configuration of ~~sensor the~~ system to in a second configuration (K2) that is different from the first configuration; (K1)

[[c)]] reading ~~in~~ and storing a second system signal (VOP, VON) ~~in the case of~~ from the device when the system is in the second configuration (K2); and

[[d)]] performing an arithmetic operation using the first system signal and the second system signal ~~with the first and second system signal~~.

10. (Currently Amended) The method according to of claim 9, wherein after Step e) reading and storing the second system signal but before performing the arithmetic operation, the method further comprises:

changing a configuration of the system and reading and storing additional system signals corresponding to changes in the configuration;

wherein the arithmetic operation is performed using the additional system signals ~~and before Step d) yet other configurations of the sensor system can be set, and corresponding system signals (VOP, VON) can be read in and stored.~~

11. (New) The system of claim 1, further comprising:

a second sensor to detect at least one of a magnetic field and an electrical field, the second sensor comprising second outputs that output second sensor signals when a field is detected;

a second signal modulator that receives second sense signals that correspond to the second sensor signals, the second signal modulator having the first and second control states, wherein in the first control state, the second signal modulator outputs the second sense signals, and, wherein in the second control state, the second signal modulator outputs inverted second sense signals;

wherein the device receives and processes the second sense signals or the second inverted sense signals.

12. (New) The system of claim 1, further comprising:

plural sensors to detect at least one of a magnetic field and an electrical field, each of the plural sensors comprising outputs that output sensor signals when a field is detected;

plural signal modulators that receive sense signals that correspond to sensor signals from corresponding ones of the plural sensors, each of the plural signal modulators having the first and second control states, wherein in the first control state, each signal modulator outputs sense signals, and, wherein in the second control state, each signal modulator outputs inverted sense signals;

wherein the device receives and processes the sense signals or the inverted sense signals.